

i.e. an *electrolyte*, must consist of two *ions*., and must also render them up during the act of decomposition.

565. v. There is but one *electrolyte* composed of the same two elementary *ions* ; at least such appears to be the fact (432), dependent upon a law,, that *only single electro-chemical equivalents of elementary ions can go to the electrodes, and not multiples.*

566. vi. A body not decomposable when alone, as boracic acid,, is not directly decomposable by the electric current when in combination (515). It may act as an *ion* going wholly to the *anode* or *cathode*, but does not yield up its elements, except occasionally by a secondary action. Perhaps it is superfluous for me to point out that this proposition has *no relation* to such cases as that of water, which, by the presence of other bodies, is rendered a better conductor of electricity, and *therefore* is more freely decomposed.

567. vii. The nature of the substance of which the electrode is formed, provided it be a conductor, causes no difference in the electro-decomposition, either in kind or degree (542, 548): but it seriously influences, by secondary action (479), the state in which the *ions* finally appear. Advantage may be taken of this principle in combining and collecting such *ions* as, if evolved in their free state, would be unmanageable.¹

568. viii. A substance which, being used as the electrode, can combine with the *ion* evolved against it, is also, I believe, an *ion*, and combines, in such cases, in the quantity represented by its *electro-chemical equivalent*. All the experiments I have made agree with this view; and it seems to me, at present, to result as a necessary consequence. Whether, in the secondary actions that take place, where the *ion* acts, not upon the matter of the electrode, but on that which is around it in the liquid (479), the same consequence follows, will require more extended investigation to determine.

569. ix. Compound *ions* are not necessarily composed of electro-chemical equivalents of simple *ions*. For instance, sulphuric acid, boracic acid, phosphoric acid, are *ions*, but not *electrolytes*, *i.e.* not composed of electro-chemical equivalents of simple *ions*.

¹ It will often happen that the electrodes used may be of such a nature as, with the fluid in which they are immersed, to produce an electric current, either according with or opposing that of the voltaic

arrangement
and in this way, or by direct chemical action, may ^{used,} sadly
disturb ^{the} results.
Still, in the midst of all these confusing effects, the electric
current, ^{which}
actually passes in any direction through the body suffering
decomposition,
will produce its own definite electrolytic action.